UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

January 3, 2005

OFFICE OF THE
REGIONAL ADMINISTRATOR

Valerie Nottingham
National Institutes of Health
NIH B13/2W64
9000 Rockville Pike
Bethesda, Maryland 20892

Re: Draft Environmental Impact Statement for the National Emerging Infectious Diseases Laboratories (NEIDL), Boston, Massachusetts, EPA ERP # NIH-B81009-MA

Dear Ms. Nottingham:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, we have reviewed the National Institutes of Health's (NIH) Draft Environmental Impact Statement (DEIS) for the National Emerging Infectious Diseases Laboratory (NEIDL) at the Boston University Medical Center Campus in Boston, Massachusetts.

According to the DEIS, the proposed action described in the DEIS includes the construction of a 194,000 square foot facility at the BioSquare Research Park in Boston. The proposed facility would include Biosafety level (BSL) 2, BSL-3, and BSL-4 laboratories that would be used to perform research related to infectious diseases. The facility would also contain support laboratories with high powered microscopes and magnetic resonance imaging (MRI) machines.

As an agency responsible for emergency response, EPA recognizes the importance and necessity of having state-of-the-art laboratories such as the proposed NEIDL which are capable of providing critically needed information on anthrax and other similar substances.

Based on our review of the DEIS we have identified concerns related to air quality issues, cumulative impacts and environmental justice. While we do not object to the project, these concerns, which are described in the attachment to this letter, should be addressed in the FEIS. We have rated the DEIS "EC-2 - Environmental Concerns–Insufficient Information" in accordance with EPA's national rating system, a description of which is attached to this letter. Please contact Timothy Timmermann (617-918-1025) of EPA's Office of Environmental Review with any comments or questions.

Sincerely,

Robert W. Varney
Regional Administrator

Additional Detailed Comments on DEIS for the National Emerging Infectious Diseases Laboratories (NEIDL), Boston, Massachusetts

Overall, EPA recommends that the Final Environmental Impact Statement (FEIS) provide additional quantitative information about the potential air quality impacts of the proposed laboratories. Without such information, it is difficult to accurately assess the potential air quality impacts of this facility. Our specific comments follow:

Air Quality

General

The Air Quality section of the DEIS accurately characterizes the existing air pollution problem in the Boston area. Boston is in attainment of Massachusetts and national ambient air quality standards for all of the criteria pollutants except ozone. Massachusetts is in non-attainment of the health based standard for ground level ozone. While the predicted impacts of this facility are generally low, the DEIS does not provide adequate quantitative information about the expected air pollution impacts. EPA recommends that the FEIS provide specific information about the expected emissions from the proposed facility. Specifically, in section 3.7.4 the DEIS indicates that the lab will purchase steam from Trigen for its operations. The FEIS should clarify the expected emissions resulting from energy use. The DEIS also mentions that the facility will have three 1750 kW emergency generators, but does not provide any information about emissions from these generators.

Section 4.7 of the DEIS indicates that the types and levels of air emissions would depend on the specific laboratory programs, but also states that emissions of volatile organic compounds (VOC) from this laboratory will be below 2,000 pounds per year, thus avoiding the need for a Limited Plan Approval under Massachusetts regulation. The FEIS should provide more quantitative information about expected VOC emissions to confirm these predicted levels.

Building Design

This section of the DEIS examines steps that the NEIDL will take to filter air from the individual laboratories within the facility. The proposed laboratory will use 2 HEPA filters with an expected 5 year life. This design raises several questions that should be answered in the FEIS:

- What steps will the laboratory take to prevent solvents and moisture from degrading HEPA filters?
- What steps will the NEIDL take to filter bypassed air when HEPA filters are being decontaminated?
- How will the NEIDL ensure that no contaminated air can bypass the HEPA filters?

The FEIS should also provide quantitative information about how the exhaust gases in the disinfection room and the equipment fumigation room of the decontamination facilities will be

captured and disposed of after use. This is important to ensure that the NEIDL has a safe and environmentally sound method for capturing potentially toxic releases.

The safety assessment conducted for the proposed laboratory does not mention whether a fault-tree analysis was performed on the design components of the building. [1] A fault-tree analysis would reveal potential health and safety considerations for the facility. Such an analysis is a more comprehensive way to identify potential points of vulnerability in the building design than risk assessment of a single release.

Risk Assessment – Worst Case Scenario Analysis

Chapter four of the DEIS includes a worst case scenario analysis assessing the impact of a loss of containment systems and a release of anthrax within the facility. The risk assessment is incomplete in that it only examines the inhalation risk, and no other exposure risks, such as risk from touching spores. In addition, it uses just one inhalation dose as the health benchmark to assess the impact of this accidental release on human health. The risk assessment in the FEIS should consider a range of health benchmarks, including that recommended by the Journal of the American Medical Association in 2002 (one spore or less), when assessing the human health impact of such an accidental release.

We also recommend that the FEIS provide more information on the eventual fate of the spores. For example, additional analysis of the deposition of the spores is necessary to identify any potential adverse environmental impacts to the air, water, or to human health. Similarly, the DEIS assumes that if 10 billion spores are released, only 400,000 will become airborne. The basis for this assumption and the predicted fate of all the spores should be explained in the FEIS.

Transportation Related Air Pollution Impacts

The DEIS indicates that the NEIDL will create an additional 660 jobs in the area. The DEIS indicates that, currently, 48 percent of employees in the area arrive in single occupancy vehicles and the rest walk, ride transit, or carpool. In order to maintain this relatively high level of commuters and others using means other than a single occupancy vehicle, we suggest that other commuting alternatives, such as walking, biking, carpooling and the use of transit be actively promoted by the NEIDL. The plan proposed in the DEIS to meet the transportation needs of commuters and others who will come to the facility includes all of the important elements of a strong transportation demand management program, but lacks any specific commitments by the NEIDL beyond membership in the local Transportation Management Association (TMA). The FEIS should present the transportation demand management plan to which the NEIDL has committed through the Commonwealth's Massachusetts Environmental Policy Act (MEPA)

---

[1] A fault-tree analysis is a risk assessment technique that provides a systematic prediction of the combination of possible occurrences in a system which can result in undesirable outcomes. Each step of the analysis presents a probability for the potential for failure. Conducting such an analysis makes it easier to determine which safety features of a facility should be over engineered in construction.

process. We recommend that the NEIDL consider raising its transit subsidy to the equivalent of thirty dollars per month per participating commuter which could qualify the NEIDL for recognition under the EPA/DOT national "Best Workplaces for Commuters" program.[2]

[2]See www.bwc.gov for additional information.

Construction Impacts

Given public health concerns about diesel exhaust, EPA strongly recommends that measures be implemented to reduce fine particle emissions associated with the construction of this facility. Specifically, EPA recommends that construction vehicles associated with this project be equipped with diesel oxidation catalysts to reduce fine particle emissions. Consistent with a number of other construction projects in the region (e.g. projects undertaken by the Massachusetts Highway Department, Massachusetts Bay Transportation Authority, and Connecticut Department of Transportation) we suggest that NEIDL incorporate contract language that reflects the following:

- All Contractor and Sub-contractor diesel powered non-road construction equipment, including generators, with engine horsepower (HP) ratings of 60 HP and above, that are on the project or are assigned to the contract for a period in excess of 30 consecutive calendar days shall be retrofitted with Emission Control Devices and/or use Clean Fuels in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

- The reduction of emissions of carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NOx), and particulate matter (PM10) will be accomplished by installing Retrofit Emission Control Devices or by using less polluting Clean Fuels.

- The Retrofit Emission Control Devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that (1) is included on the Environmental Protection Agency (EPA) *Verified Retrofit Technology List* and (2) is verified by EPA or certified by the manufacturer to provide a minimum emissions reduction of 20% PM10, 40% CO, and 50% HC.

- The Clean Fuels shall consist of low NOx and PM10 emission diesel fuel that (1) can be used without engine modification, (2) is certified to provide a minimum emissions reduction of 30% PM10 and 10% NOx when compared to No. 2 Diesel Fuel, and (3) is included on the California Air Research Board (CARB) Verification List.

- Construction shall not proceed until the contractor submits a certified list of the non-road diesel powered construction equipment that will be retrofitted with emission control devices or that will use Clean Fuels. The list shall include (1) the equipment number, type, make, and contractor/sub-contractor name; (2) the emission control device make, model and EPA verification number; and/or (3) the type and source of fuel to be used.

- The contractor shall submit monthly summary reports, updating the same information stated above, and include certified copies of the clean fuel delivery slips for the report time period, noting which vehicles received the fuel. The addition or deletion of non-road diesel equipment shall be included on the monthly report.

- The contractor shall establish truck-staging zones for diesel powered vehicles that are waiting to load or unload material at the contract area. Such zones shall be located where the diesel emissions from the trucks will have minimum impact on abutters and the general public. Idling of delivery and/or dump trucks, or other diesel powered equipment shall not be permitted during periods of non-active use, and must comply with State anti-idling laws.

Other Issues

Appendix 6: Summary Report and Risk Assessment

The DEIS carried out a screening-level assessment to examine anthrax spore concentration isopleths under a variety of release conditions. This analysis included dispersion modeling, using EPA's SLAB model (a computer model that simulates the atmospheric dispersion of denser-than-air releases), to examine how a release might disperse into the atmosphere. EPA has approved the SLAB model to assess dense gas releases, but not to assess elevated aerosol releases, as is the case in this analysis. This is in part because SLAB does not account for downwash. Since the release modeled in the DEIS is from an elevated stack, EPA recommends modeling with a more inclusive dispersion model such as ISCST3 or AERMOD. These models can accommodate intervals of less than an hour and can model downwash.

Siting and Cumulative Impact

The DEIS does not provide any quantitative information about the cumulative effect of this facility combined with other facilities proposed for the area. It states that analysis of the cumulative effect of this laboratory, together with other proposed build-outs in the area, is on file with state and local agencies. EPA recommends that the FEIS include an analysis of the cumulative effect of this proposed laboratory with existing facilities and other facilities under consideration for the area. This is important since it is possible that the environmental impact of one laboratory facility may not warrant environmental concern, but when examined in combination with others, could represent part of a larger impact on the surrounding community and local air quality.

EPA also recommends that the FEIS examine a range of alternative locations for this facility in the greater Boston area. The DEIS dismisses alternative sites in the Boston area, stating that it is necessary for the NEIDL to be located close to the Harvard Medical School. However, several of the research facilities that will collaborate with staff at the NEIDL are located in towns outside of Boston, including Waltham, Worcester and Cambridge.

Environmental Justice

We recommend that the environmental justice analysis be amended because 1) the definition of the area of impact considered is too small; 2) cumulative health effects should be more thoroughly analyzed; and 3) there is not enough information to determine the effectiveness of the public participation efforts to date.

The affected area of the project discussed in the DEIS consists of two U.S. census block groups in the South End of Boston that are environmental justice areas as defined by the Massachusetts Environmental Justice Policy, based on minority resident concentration. However, in looking at the map of the proposed site, there are additional areas of Boston to the south and east of the proposed facility, in the neighborhoods of Dorchester and Roxbury, that could also potentially be affected, and these areas have high concentrations of minority and low-income residents.[3] EPA recommends expanding the impacted area analyzed in the FEIS to include an area within 1 mile of the proposed facility.

Section 1.4.5 and 1.6.5 of the DEIS notes that many comments concerning environmental justice were raised about the project during the public scoping period, including the comment that the project is proposed for an area that is already overburdened. However, chapter 4 concludes that "the neighborhood is not an area that currently has a disproportionate number of undesirable land uses," yet does not provide data to support this statement. As mentioned above, there in no quantitative information about the cumulative environmental and public health effects of this facility combined with other existing facilities or proposed facilities in the area. Since air quality impacts are the major environmental concern associated with this project, the FEIS should identify other facilities or activities in the area that affect air quality. As noted in comments above, some emissions associated with the proposed project have yet to be precisely quantified. But the VOC emissions expected from the facility and diesel exhaust that will be emitted during construction can aggravate asthma, among other health impacts. Unfortunately, the highest asthma hospitalization rates for children in Boston are found in Roxbury (14.7%) and North Dorchester (12.3%).[4] EPA recommends that the FEIS include a comprehensive analysis of the cumulative health impacts associated with this project that includes asthma rates and other relevant preexisting health conditions in the affected communities. Mitigation efforts should ensure that these at-risk groups are not exposed to additional environmental health burdens.

The DEIS documents its extensive public participation efforts, noting that environmental justice concerns were raised throughout the scoping process and that the Boston University Medical Center (BUMC) has held a number of community meetings about the proposed project. The FEIS should specify which impacts from the construction and operation of the facility are of

---

[3]Note that the EPA does not designate environmental justice areas, but rather identifies areas with high minority and/or low-income populations as potential areas of environmental justice concern since race and income are widely recognized as strong indicators of populations which might bear elevated environmental burdens and/or risks.

[4]The Boston Foundation Indicators Project Report, 2002.

concern to the affected community and what measures are proposed to mitigate them. Without this information we are unable to conclude, as Chapter 4 of the DEIS does, that construction, noise and air quality impacts associated with the project will be negligible. The FEIS should also clarify the Construction Management Plan. Lastly, the DEIS makes reference to a Biosafety Laboratory Advisory Group, but does not identify the members of the group. EPA recommends that this group include appropriate representation from the communities surrounding the facility, including Roxbury and North Dorchester. Representatives from the Greater Boston Environmental Justice Network could help advise representation on this board. We recommend that the FEIS provide a list of the members of this group.